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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,202	04/19/2004	Olubunmi O. Adetutu	SC13238TP	2319
23125	7590	09/22/2005	EXAMINER	
FREESCALE SEMICONDUCTOR, INC. LAW DEPARTMENT 7700 WEST FARMER LANE MD:TX32/PL02 AUSTIN, TX 78729			EVERHART, CARIDAD	
			ART UNIT	PAPER NUMBER
			2891	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/827,202	Applicant(s) ADETUTU ET AL.	
	Examiner Caridad M. Everhart	Art Unit 2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29-39 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 23-28 is/are rejected.
- 7) ☒ Claim(s) 5-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7-22-05</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-4 , 23, 24, and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen, et al. (US 2004/0198009A1) in view of Arai(JP63-299280A)(abstract).

Chen, et al disclose the steps of forming a gate metal on a first gate dielectric portion of a substrate(in which the layer 16 is the gate oxide, layer 46 is conductive layer and layer 44 is tungsten(paragraph 0052, and 0056 and Fig. 11), while the gate dielectric in a second portion of the substrate is protected by layer 18 shown in Fig. 11, which is interpreted as selectively forming the conductor on the first portion of the gate dielectric on the substrate. Chen, et al further teach that one portion is NMOS and the other is PMOS(paragraph 0053). Layer 38 shown in Fig. 13 is a different metal from that in the first gate(paragraph 0063). The first metal layer can be deposited by CVD(paragraphs 0055 and 0056). Although Chen, et al teach a polysilicon layer and a silicide as the first conductive layer, this is not excluded by the claims, as claim 27 includes the deposition of polysilicon and metal layers. The metals in the first and second gates have different work function, as the metals are different metals.

Chen et al teaches polysilicon as the first conductor rather than metal.

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Arai teaches depositing silicide and refractory metal as the conductive layers, and in applicant's specification, as mentioned in applicant's response, silicide is included in the deposition of metal.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the process taught by Chen et al for the deposition of metal as taught by Arai because Arai teaches that multiple gates of different layers can be formed for different parts of a substrate and the process taught by Chen et al is an improvement of this method.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al in view of Arai as applied to claim 1 above, and further in view of Forbes, et al. (US 2004/0140513A1).

Chen et al does not teach ALD.

Forbes et al teaches ALD for the deposition of layers in the formation of gates of different work functions(paragraph 0019 and 0032).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have applied the method taught by Forbes et al to the process taught by Chen et al in view of Arai because Chen et al teaches many of the same materials as does Forbes et al for the same purpose, that is the formation of gates of different work functions, and because Forbes et al teaches that ALD is a modification of CVD(paragraph 0021), which is taught by Chen et al .

Allowable Subject Matter

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Claims 29-39 are allowed.

Claims 5-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach the limitation "forming an inhibitor on the gate dielectric of the second region".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caridad M. Everhart whose telephone number is 571-272-1892. The examiner can normally be reached on Monday through Fridays 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, B. Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Everhart
9-19-05


CARIDAD EVERHART
PRIMARY EXAMINER